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10/717,970	11/21/2003	Yoshifumi Tanada	12732-178001 / US6774	8011

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FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER

SHERMAN, STEPHEN G

ART UNIT	PAPER NUMBER
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2629

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12/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/717,970

Applicant(s)

TANADA ET AL.

Examiner

Stephen G. Sherman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-12 and 19-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-6, 8-12 and 21-22 is/are allowed.
- 6) ☒ Claim(s) 1, 19, 20 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment filed 26 November 2007.

Claims 1-6, 8-12 and 19-23 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 19-20 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1, 19-20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utsugi (US 5,837,391) in view of Tokimoto et al. (EP 1 204 087 A1) and further in view of Ochi et al. (US 2003/0107537).

Regarding claim 1, Utsugi discloses a display device comprising:

a pixel comprising first to n-th light-emitting elements that comprise first to (n+1)-th pixel electrodes and first to n-th light-emitting layers that emit different emission colors (Figure 5 shows a pixel, with 3 light emitting elements that comprise pixel electrodes 42a-d and light-emitting layers 22a-c.),

wherein:

the first to n-th light emitting elements are laminated in a stacked, alternating relationship such that each light-emitting layer is between and in contact with two pixel electrodes and each pixel electrode, with the exception of the first pixel electrode and the (n+1)-th pixel electrode, is between and in contact with two light emitting layers, n is a natural number, $2 \leq n$ (Figure 5 shows that the three light emitting elements are stacked in an alternating relationship, with each light emitting layer 22a-c being in contact with two pixel electrodes 42a-d, and each pixel electrode is in contact with two light emitting layers except for 42a and 42d, which are only in contact with one light emitting layer. Column 7, lines 33-35 explain that the fabrication techniques are

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applicable to the first embodiment, which explains in column 4, lines 50-64 that the light emitting elements are laminated.).

Utsugi fails to teach that each of the first to n-th light-emitting elements emits light in a field sequential driving format.

Tokimoto et al. disclose of a display device which has multiple light emitting elements that emit different color, where each of the light emitting elements emits light in a field sequential driving format (Figure 8 and paragraphs [0058]-[0059] explain that the red, green and blue LEDs are each selected sequentially in order to emit light. Paragraphs [0060]-[0063] explain that the red is selected, then the green, and then the blue and that this is repeated every period meaning that in every period, i.e. field, that each color is elected sequentially.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to drive the pixel structure taught by Utsugi in a field sequential manner as taught by Tokimoto et al. in order to provide high speed driving in a superior manner such that a high-quality image is displayed and also gradation control of an extremely high-performance can be realized by an extremely simple configuration.

Utsugi and Tokimoto et al. fail to teach of first to n-th current supply lines that are configured to supply current to the first to n-th light emitting layers via the first to n-th pixel electrodes, respectively.

Ochi et al. disclose a display device comprising first to n-th current supply lines that are configured to supply current to first to n-th light emitting elements via first to n-th pixel electrodes, respectively, within one pixel (Paragraph [0016] explains that there are

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three light emitting elements 11R, 11G and 11B in each pixel shown in Figure 3.

Paragraph [0022] explains that Figure 7 shows three current supply lines connected to current sources 22R, 22G and 22B which are each respectively connected to the first electrode, i.e. pixel electrode, of each light emitting element.).

Therefore it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to use separate current supply lines for each different color as taught by Ochi et al. with the display device taught by the combination of Utsugi and Tokimoto et al. in order to reduce power consumption by decreasing the output voltage of the power source and decreasing the voltage drops in the individual current sources (See Ochi et al., paragraph [0023]).

Regarding claim 19, please refer to the rejection of claim 1, and furthermore Tokimoto et al. also disclose a driving method of a display device comprising the steps of:

sequentially selecting any one of first to n-th light-emitting elements that are included in pixels and emit different emission colors (Figure 8 and paragraphs [0058]-[0059] explain that the red, green and blue LEDs are selected sequentially.);

controlling potential between two electrodes of the selected light-emitting element (Paragraph [0057] explains that the two electrodes of the LEDs are connected between a current source and a power source and that a switch controls the connection to the power source Vcc in order to control the potential between the two electrodes of the LED.); and

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sequentially causing the light-emitting element to emit light (Figures 7 and 8 and paragraphs [0057]-[0059] explain that the red, green and blue LEDs sequentially emit light.).

Regarding claim 20, Utsugi, Tokimoto et al. and Ochi et al. disclose the semiconductor device according to claim 1.

Utsugi, Tokimoto et al. and Ochi et al. fail to teach wherein the semiconductor device is one selected from the group consisting of an EL display, a video camera, a personal computer, a portable information terminal, a mobile telephone, and a digital camera.

However, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the semiconductor device taught by the combination of Utsugi and Tokimoto et al. in one of an EL display, a video camera, a personal computer, a portable information terminal, a mobile telephone, or a digital camera in order to utilize the advantageous power savings of the device.

Regarding claim 23, Utsugi, Tokimoto et al. and Ochi et al. disclose the driving method according to claim 19.

Utsugi, Tokimoto et al. and Ochi et al. fail to teach wherein the semiconductor device is one selected from the group consisting of an EL display, a video camera, a personal computer, a portable information terminal, a mobile telephone, and a digital camera.

However, it would have been obvious to “one of ordinary skill” in the art at the time the invention was made to use the semiconductor device taught by the combination of Utsugi and Tokimoto et al. in one of an EL display, a video camera, a personal computer, a portable information terminal, a mobile telephone, or a digital camera in order to utilize the advantageous power savings of the device.

Allowable Subject Matter

6. Claims 2-6, 8-12 and 21-22 are allowed.

7. The following is an examiner’s statement of reasons for allowance:

Regarding claims 2 and 3, the primary reason for allowance is the limitation of “first to n-th current supply lines” in combination with the rest of the recited structure, which is not found singularly or in combination within the prior art. The first closest prior art reference Knapp, teaches of having first to n-th control lines, which control the current flow through the display elements, however, the current which passes through the display elements is supplied from a single current supply line, not from multiple current supply lines. The second closest prior art reference Ochi et al. discloses of having first to n-th current supply lines in Figure 7, however, because of the recite structure found in independent claims 2 and 3, the combination of Knapp and Ochi et al.

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would fail to teach the recited structural connections and configuration as required by the other limitations of the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

17 December 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

